

**Notice of Allowability**

Application No.

10/804,398

Examiner

Charlie Peng

Applicant(s)

GRUHLKE, RUSSELL W.

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 29 August 2005.
2. ☒ The allowed claim(s) is/are 1-15 and 17-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 20051108.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

## **DETAILED ACTION**

### ***Reasons for Allowance***

Claim 1 is allowed. The following is an examiner's statement of reasons for allowance:

Prior art discloses using a reflective type diffractive optical element to focus an incident light; however, incident light is 1) reflected back to the same direction as the incident light (Poguntke reference), or 2) reflected at a perpendicular direction away from the direction of the incident light. The limitation "across the diffractive optical element" places the optical emitting element and the optical receiving element on two opposite sides of the diffractive optical element in a substantially level manner (i.e., the diffractive element is located between the emitting and receiving elements). This limitation clearly differentiates the current claims from prior art, and it is the examiner's opinion that prior art taken alone or in combination, does not render obvious optical emitting and receiving elements placed across a diffractive element that focuses a divergent light propagating from the emitting element to the receiving element, in combination with the rest of the limitations of the base claim.

Claims 2-13 are allowed as dependent claims of the allowed independent claim 1.

Claim 14 is allowed. The following is an examiner's statement of reasons for allowance:

Prior art discloses using a method of using a reflective type diffractive optical element to focus an incident light; however, incident light is 1) reflected back to the

same direction as the incident light, or 2) reflected at a perpendicular direction away from the direction of the incident light. The limitation "across the diffractive optical element" places the optical emitting element and the optical receiving element on two opposite sides of the diffractive optical element in a substantially level manner (i.e., the diffractive element is located between the emitting and receiving elements). This limitation clearly differentiates the current claims from prior art, and it is the examiner's opinion that prior art taken alone or in combination, does not render obvious a method of obliquely illuminating a diffractive element with an incident light, the diffractive element focusing the incident light, which is received across the diffractive element from the direction of incidence, in combination with the rest of the limitations of the base claim.

Claim 15 is allowed. The following is an examiner's statement of reasons for allowance:

Prior art discloses using a method of using a reflective type diffractive optical element to focus an incident light; however, incident light is 1) reflected back to the same direction as the incident light, or 2) reflected at a perpendicular direction away from the direction of the incident light. The limitation "across the diffractive optical element" places the optical emitting element and the optical receiving element on two opposite sides of the diffractive optical element in a substantially level manner (i.e., the diffractive element is located between the emitting and receiving elements). This limitation clearly differentiates the current claims from prior art, and it is the examiner's opinion that prior art taken alone or in combination, does not render obvious a method

of focusing a light transmitting from an optical emitting element to an optical receiving elements across a recessed diffractive element, in combination with the rest of the limitations of the base claim.

Claims 17-20 are allowed as dependent claims of an allowed independent claim 15.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with L. Wilson on November 10, 2005.

**Claim 15:** Please amend claim 15 to as follows:

15. A method of manufacturing an optical coupling, comprising:  
providing a substrate comprising a semiconductor layer;  
forming in the semiconductor layer and electro-optical device having a front facet;  
etching the substrate to form a recessed surface adjacent the front facet; [and]  
defining a diffractive optical element in the recessed surface; and

positioning an optical waveguide on the substrate across the diffractive optical element from the front facet.

**Claim 16:** Please cancel claim 16.

**Claim 17:** on line 4, replace [an optical waveguide] with "the optical waveguide".


**Claim 19:** on line 3, replace [an optical waveguide] with "the optical waveguide".

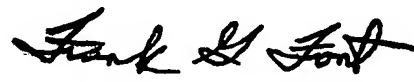
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charlie Peng whose telephone number is (571) 272-2177. The examiner can normally be reached on 9 am - 6 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Charlie Peng  
November 10, 2005

  
Frank G. Font  
Supervisory Patent Examiner  
Technology Center 2800